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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,048	08/15/2001	Yoshikazu Kanazawa	1614.1179	9922

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EXAMINER	
GUHARAY, KARABI	
ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/929,048	KANAZAWA ET AL.	
	Examiner	Art Unit	
	Karabi Guharay	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendmen , filed 9/29/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-3,5-10 and 14* is/are allowed.

6)☒ Claim(s) *11,16,17,20 and 21* is/are rejected.

7)☒ Claim(s) *12,13,15,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Amendment filed on 9/29/04 has been considered and entered.

In amendments of claims 1, 16, in the condition for angle θ, "greater than equal to symbols" are missing, however since this is a part of previously presented limitation it is understood that the condition is same as previously presented condition.

But for the sake of correcting the record, applicant is advised to correct that typographical error in amended claims 1 and 16, filed on 9/29/04.

Amendment of claims and specification overcome the objection to the specification as well as rejection of claims 9-10, 12-15 & 19 under 35 USC 112 first paragraph.

Claim Objections

Claim 15 is objected to because of the following informalities:

In claim 15, line 5, the redundant article "a" should be deleted. Apppriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 11, 16-17, 20 & 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Hashimoto (US 6646377).

Regarding claim 11, Hashimoto discloses a plasma display device (Fig 4 & Fig 35 & Fig 40) having first and second substrates (11, 21) and a discharge gas filled therebetween (lines 38-39 of column 1), the plasma display device comprising, first and second electrodes (13 of X, Y in Figs 5 & 40) extending parallel to each other on a the first substrate (11), and first and second discharge electrode parts (12) extending from the first and second electrodes (13 of X, Y) respectively, so as to oppose each other, and a plurality of partition walls (29) formed on the second substrate (21) so as to extend perpendicularly to the first and second electrodes (X,Y, see Fig 35), the partition walls (29) each separating an array of the first and second discharge electrode parts (12) from an adjacent array of the first and second discharge electrode parts (see Fig 40), wherein a discharge gap (D) of a substantially constant width is formed between opposing first and second discharge electrode parts, the discharge gap being defined by first and second edge parts of the opposing first and second discharge electrode parts (12) respectively, the first and second edge parts (see Fig 40) have lengths, longer than widths of the first and second discharge electrode parts, the widths being measured in directions in which the first and second electrodes extend, respectively (since front part 12 in Fig 40 is positioned obliquely with respect the direction of extension of first and second electrode X,Y), the first and second edge parts are defined by plurality of straight line segments forming angles with respect to the respective directions in which the first and second electrodes extend (see Fig 40), and the first and second discharge electrode parts extend toward each other in parallel with but not overlapping the partition walls (see Fig 40).

Regarding claim 16, Hashimoto discloses a plasma display device (Fig 4 & Fig 35 & Fig 40) having first and second substrates (11, 21) and a discharge gas filled therebetween (lines 38-39 of column 1), the plasma display device comprising, first and second electrodes (13 of X, Y in Figs 5 & 40) extending parallel to each other on a the first substrate (11), and first and second discharge electrode parts (12) extending from the first and second electrodes (13 of X, Y) respectively, so as to oppose each other, and a plurality of partition walls (29) formed on the second substrate (21) so as to extend perpendicularly to the first and second electrodes (X,Y, see Fig 35), the partition walls (29) each separating an array of the first and second discharge electrode parts (12) from an adjacent array of the first and second discharge electrode parts (see Fig 40), wherein a discharge gap (D) of a substantially constant width is formed between opposing first and second discharge electrode parts, the discharge gap being defined by first and second edge parts of the opposing first and second discharge electrode parts (12) respectively, the first and second edge parts (see Fig 40) have lengths, longer than widths of the first and second discharge electrode parts, the widths being measured in directions in which the first and second electrodes extend, respectively (since front part 12 in Fig 40 is positioned obliquely with respect the direction of extension of first and second electrode X,Y), the first edge part (slat side surface of 12) forms an angle θ (here 45 degree) with respect to the direction in which the first electrode (X) extends, the angle θ satisfying a condition $30° \leq \theta \leq 60°$, and each of the first and second edge parts (branch parts 12) is of a rectilinear configuration so that a distance between the first and second edge parts is substantially uniform and the first

and second electrode parts extend toward each other in parallel with but not overlapping the partition walls (see Fig 40).

Regarding claim 17, Hashimoto discloses that the first and second edge part is a single straight line or a plurality of straight line segments (see Fig 40).

Regarding claim 20, Hashimoto discloses that each of the first and second edge parts comprises a tip part having angularly bent ends and each of the first and second edge parts comprises a plurality of oblique lines of the tip part (since branch part 12 in Fig 40 is has a T-shape whose head part is obliquely bend).

Regarding claim 21, Hashimoto discloses a plasma display device (Fig 4 & Fig 35) having first and second substrates (11, 21) and a discharge gas filled there-between (lines 38-39 of column 1), the plasma display device comprising, first and second electrodes (X, Y of Fig 1) extending parallel to each other on a the first substrate (11), and first and second discharge electrode parts (12) extending from the first and second electrodes (X, Y) respectively, so that a discharge gap (D) is formed between first and second edge parts, the first edge part is inclined at a first angle with respect to a first direction in which the first electrode extends (see Fig 1), the first angle being determined so that a length of the first edge part minimizes a discharge starting voltage and a drive current for sustaining discharge and is longer than a width of the first electrode part measured in first direction (such inclined or oblique branch electrode structure increases the length of the discharge gap which reduces power loss, lines 45-63 of column 8, and also prevents deterioration of the protective film, lines 36-38 of column 2, thus, in other words reduces the starting voltage and drive current), and the

second edge part is inclined at a second angle with respect to a second direction in which the second electrode extends, the second angle being determined so that a length of the first edge part minimizes a discharge starting voltage and a drive current for sustaining discharge, and is longer than a width of the second discharge electrode part in the second direction (see, Fig 1, Fig 10 , Fig 14, Fig 15), first and second edge parts are substantially parallel to each other so that a distance there between in uniform (lines 22-31 of column 3).

Allowable Subject Matter

Claims 1-3, 5-10 & 14 are allowed over the prior art of record.

Claims 12-13, 15, 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, prior art of record neither shows nor suggests a plasma display device comprising all the limitations set forth in amended claim 1, particularly comprising the first and second electrode edge parts having lengths longer than the width of the discharge electrode parts, the width being measured in directions in which the first and second electrodes extend respectively and the width of the first and second electrode part is 120 micron or less.

Regarding claims 12-13, 15, 18-19, prior art of record neither shows nor suggests a plasma display device comprising the limitations set forth in claims 12-13 & 15, 18-19 respectively together with other limitations.

Response to Arguments

Applicant's arguments, filed on 9/29/04 regarding claim 21,have been considered but are not persuasive.

In response to applicant's argument examiner respectfully points that Hashimoto teaches that the electrode parts are skewed or inclined in order to increase the length of the discharge gap and further teaches that the increased length of the discharge gap reduces the deterioration of the protection layer (MgO layer) on the dielectric layer (lines 36-38 of column 2). It is well known that protection layer by secondary emission reduces the driving voltage and current, thus reducing the deterioration of protection layer inherently reduces the starting voltage and drive current. See Oida et al. (US 6232717) & Moon (US 6495958).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karabi Guharay

Karabi Guharay
Patent Examiner
Art Unit 2879